"I Love that Something I Design Can Become a Real Product that Could Be Used to Find New Treatments or New Biomarkers"

Michele Veldsman

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Abstract In our interview with Michele Veldsman, she shares her journey from cognitive neuroscience to Director of Neuroscience R&D in industry. Initially planning an academic career, Michele became disillusioned with the precarity of short-term contracts and grant funding uncertainty. Through self-reflection exercises, she realized academia is no longer aligned with her values and priorities. Michele highlights the importance of actively evaluating your career goals. She advises gaining commercial experience through internships and collaborations. Though no longer doing her own projects, Michele finds meaning applying her expertise to real-world problems like biomarkers for dementia. She values the teamwork, clear objectives, and faster pace of industry.

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Chris: Can you introduce yourself and tell me a bit about your current position?

Michele: I am Director of Neuroscience R&D at Cambridge Cognition. I am a former academic, having spent 9 years in academia following my PhD in Cognitive Neuroscience from the University of Cambridge. I am also a mum of two small kids.

What was the focus of your PhD?

I investigated individual differences in visual short-term memory using behavioral tasks and magnetic resonance imaging (MRI). Most visual short-term memory tasks, at the time, used very simple stimuli, like colors or shapes. I wanted to make visual memory experiments more relevant to the sort of complex images we process in our daily lives. I used prominent mathematical models of visual short-term memory storage to estimate how many complex visual images we could store, whether this storage limit was associated with intelligence and whether we could decode these images from activity in the brain captured with fMRI.

I was based at the Medical Research Council, Cognition and Brain Sciences Unit at the University of Cambridge, finishing in 2013 (which doesn't seem that long ago!)

As you were finishing your PhD, what were you thinking about your career plans?

I was only funded for 3 years, but it took me closer to 4. In the last few months of writing up, I took a full-time job as a Higher Statistical Officer at the Department of Energy and Climate Change in the UK (a now defunct government department). I

was basically a data-scientist, before it became cool! I did want to stay in research though, so that job was mostly a means to an end (to pay the rent while I finished writing my PhD). I managed to get my first postdoc position in Melbourne and left about 6 months after submitting my PhD to move to Australia and start that. Although I was keen to keep doing research, I always had in the back of my mind that I might not stay in academia (whether or not I chose to) and so I amassed other skills while I did my research.

How have your career plans changed as you've continued on to your current position?

After having kids, I became increasingly disillusioned about my future in academia. It became too stressful to carry on working on short-term contracts and worrying about having to pay for childcare and support my family. I had two children under four, while still in academia. Childcare costs were over half my salary. While the university did provide generous maternity leave cover and subsidized childcare (childcare was paid from my salary before tax), my children's place at the nursery was dependent on me having an ongoing contract of employment with the University. As my original contract was only 2 years, I kept having to find ways to extend the contract (and I am grateful to a very supportive PI for helping me do this) and keep my children's place at the nursery. I found it very stressful, as well as the looming threat of a contract ending and there being no funds left anymore to extend it. Having already done four postdocs across Melbourne, Singapore, and Oxford, I knew that I was becoming increasingly unlikely to get another postdoc and would be forced to move to independence and start my own lab. Having two small children, I couldn't take the risk of the low success rates of fellowships and grants to start my lab. It seemed an unsustainable and financially insecure way to raise my family.

Can you tell us a bit about what day-to-day life is like in your current position?

I'm very grateful that my days are all very different and engaging. In a typical week, I have one weekly lab meeting – where we discuss data and papers and present our results – very much like a typical lab meeting, I have one weekly touchpoint with my team and one with the company in which we learn about what all the other Departments are doing. I also have meetings with collaborators – academic, pharmaceutical, and other biotech companies. Sometimes in person, often online. I really enjoy these as the topics vary widely and I have always loved to collaborate. I spend a lot of time analyzing data from different projects – I still write papers and

present at conferences – and designing new experiments. I also try to initiate new collaborations that will help validate some of our work and bring new clients.

What do you like most about your work?

I love that something I design can become a real product that could be used to find new treatments or new biomarkers. When I designed cognitive tasks in the past, they were usually used in a single experiment and rarely got used again. Here, something I develop could be turned into a real product (like a task on one of our apps) and used in clinical trials to find new treatments.

I love how varied my job is and how fast things move. Because we work as a big team, things move very quickly and we have very clear objectives. I felt this lacked in academia, where some things would just hang around forever with no clear end point.

I love collaborating with people and constantly learning – sometimes I am asked to work with new customers or academic partners on a completely new area of neuroscience or a new clinical population, and I love learning about that area and working with world class experts.

And what do you like least about your work?

I have lots of meetings which can give me zoom fatigue! Because we are a large interconnected company, there can be lots of meetings updating each other on progress. Sometimes these can feel irrelevant to your personal projects, but most of the time it is useful to understand how several moving parts are working together and where your work fits into everything. This is partly due to me working remotely too, a lot of these meetings would be in person chats, but that isn't possible because I am remote. I prefer to be remote though, as it gives me more flexibility with looking after my kids too.

How do you think having a PhD has helped you succeed in your current position?

It was absolutely necessary, I couldn't do my job without a PhD. My postdocs were also important as it allowed me to build the skills I need for my current position and the academic network that I still collaborate with.

If someone currently finishing their PhD was considering a position similar to yours, how might they decide if it would be a good fit?

I would suggest that they think about how much they want to consider doing research in their specific field or whether they are more interested in doing science generally.

I don't always get to choose what I work on, but I still love everything I am researching and the projects I lead and collaborate on. For example, my expertise is in aging and neurodegeneration, but I've done projects on schizophrenia and psychedelics. I would also consider how much you like to travel and whether you are, or could learn to be, more commercially minded. For example, if I'm designing an experiment, I need to think about whether our customers would find it useful and build a use case for it.

If someone was interested in pursuing a similar career path, what would you suggest they do to better prepare themselves?

I would get some commercial experience, either an internship or placement in a company, or some consulting experience. With the explosion of neurotechnologies, there are a number of start-up companies and growing biotechs that often need ad hoc consultancy. Contact your university enterprise office to ask them for consulting opportunities. You could also try to get involved in collaborations with industry; there are now several large consortia and networks involving academia and industry, allowing you to get experience working with industry. The benefit of these consortia and industry partnerships are that you can see how industry works differently to academia and how often the industry partners you work with are often PhDs or former academics themselves. Try to get leadership experience. Volunteer for committees and take on leadership roles when they become available.

A lot of people like academia because they feel it gives them an opportunity to work on a topic that they deeply care about. Do you think this is also true in your current position?

Absolutely. I care very deeply about finding biomarkers for cognitive decline – something I still work on now. It is true that I can't focus solely on this – I also work on projects to do with schizophrenia, psychosis, and psychedelics, and I don't have much choice on that. However, since our product is cognitive testing, all these projects require my expertise in cognition.

When I was in academia, I didn't have my own lab, so I still had to do projects that my PI gave me and didn't have much choice in that either. In both positions, a basic love of cognitive neuroscience has helped me find everything I do interesting and important.

Another reason many like academia is that they feel it provides them with more freedom than they think they would get in other positions. How much freedom do you feel you have to work on what you think is interesting?

I have a lot of freedom to work on things I find interesting. I think this is a common misconception. I am lucky that I work in R&D so a lot of my job involves exploring new avenues of research and advances in technology. Recently, I became more interested in gut-brain interactions and how diet affects cognition, so I have reached out to academics and industry partners to explore how we can study this. I have also been fascinated by AI advances and so am findings ways to use these tools in our technology and in design of our cognitive tasks.

Have you thought about returning to academia?

No. The only thing that would have kept me was the amazing network I had built up and the wonderful people I worked with, but since I still see them all at conferences and can collaborate with them, I have no desire to go back to academia. While I loved a lot of my time in academia, I think it probably wasn't right for me.

Based on your journey, what advice or suggestions do you want to pass on to someone who's currently finishing their PhD?

Make sure you are making active decisions in your career. It can be easy to just go with the flow or do what is expected of us and not take time to reflect on what we really want from our careers and our lives. I spent most of my academic life preparing for the next stage of my academic career and only after a personal development course I went on did I deeply reflect on what I actually wanted from my career.

The main reasons I was remaining in academia was because I had gotten so far and I didn't know what else was available for me and because I felt like leaving would be a failure. On deep reflection and research on what was out there, I realized

academia was not the path I wanted to choose and it is never too late to change your mind.

It is also not a failure to leave academia, since the number of jobs is far, far below the number of PhDs. As is becoming recognized, the "alternative career" i*s academia*, not the other way around. Because of the revelation this was to me, and how much it changed my life, I have put together a course to help other people thinking of moving out of academia. https://t.co/vxyyAnCIyN

Is there anything else you'd like to tell someone reading this interview?

Reach out to me if you want help (michele.veldsman@gmail.com or https://www.linkedin.com/in/micheleveldsman/). I have helped a lot of people through mentoring and I am happy to add to your network. Always be open to contacting or reaching out to people, most people are nice and happy to help – those that aren't will probably just not respond. Almost everyone has gone through career transitions and know what it's like when you are exploring new options.

Don't underestimate your skills. When you have been in academia for a while, you start to think having a PhD and having all this knowledge and skill is nothing special – it is! You have a lot of skills, and all of them are translatable.

Thank you for sharing your experiences with us, Michele!